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Feasibility of Online Psychoeducation for Bipolar Disorder

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FEASIBILITY OF ONLINE PSYCHOEDUCATION FOR BIPOLAR DISORDER

By

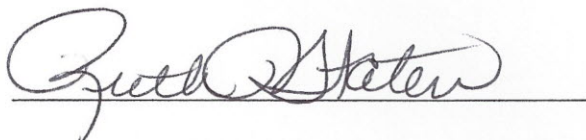
Scott Alan Kristie

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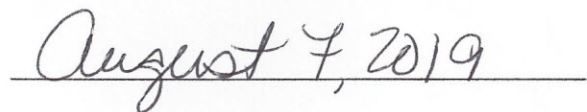
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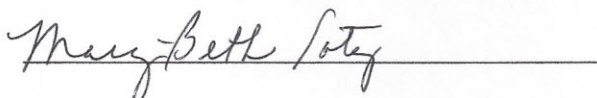
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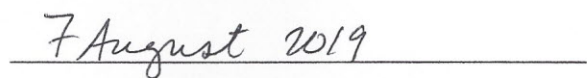
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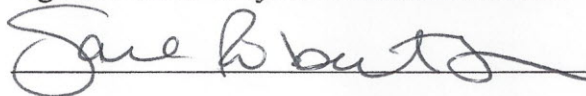
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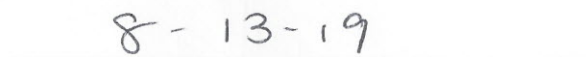
Signature DNP Project Committee Member



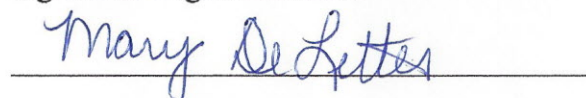
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Date



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Abstract

Problem Statement: Bipolar disorder (BD) is a chronic mental disorder that can negatively affect an individual's quality of life (QoL). Psychoeducation (PE) programs are an evidence-based psychosocial adjunct, recommended by the National Institute for Health and Care Excellence (NICE) for the treatment of BD. However, the majority of individuals with BD are not given access to formal PE programs.

Purpose: An online PE program was implemented at three outpatient local mental health settings in order to increase access to PE for adults with BD. The World Health Organization Quality of Life brief (WHOQOL-BREF) scale was used to assess the intervention's impact on subjective QoL ratings. The Brief Illness Perception Questionnaire (Brief IPQ) was used to assess participants' cognitive and emotional perceptions of BD.

Methods: A pretest-posttest design was used. Participants completed an evidence-based, eight-module online PE intervention entitled Beating Bipolar. After an in-person introduction to the intervention, the modules were completed either independently or onsite at a community mental health clinic.

Analysis: The WHOQOL-BREF and the Brief IPQ outcome measures were administered pre- and post-intervention. After completing the intervention, participants provided feedback related to the intervention process. Statistical analysis was not completed due to limited project participation ($n = 2$).

Significance: Online programs may be a valuable tool in increasing access to PE, however further efforts are needed on how to best translate RCT findings in actual clinical settings.

Keywords: bipolar disorder, psychoeducation, quality of life, online, Internet, telehealth, telepsychiatry, mood disorder

Online Psychoeducation to Improve Quality of Life for Individuals with Bipolar Disorder

Bipolar disorder (BD) is a clinically severe, lifelong mood disorder with high rates of recurrence (Fagiolini et al., 2013). The disorder is associated with high levels of functional (social, occupational, cognitive) impairment, substance abuse, legal problems, and suicide risk (American Psychiatric Association, 2013). In 2013, 48.8 million global cases of BD accounted for 9.9 million disability-adjusted life years (Ferrari et al., 2016). Within the United States, an estimated 2.8 percent of adults had the disorder in 2017 (National Institute of Mental Health [NIMH], 2017).

The illness is known to have a significant negative impact on quality of life (QoL) (Hidalgo-Mazzei et al., 2017). BD is most often regarded as an illness of episodes, involving mood and behavior fluctuations. While these acute episodes are significant, the chronicity of the illness is also important. Residual symptoms are experienced by a high number of individuals when they are not in a BD episode, contributing to QoL reduction (Fagiolini et al., 2013).

Background and Significance

Although pharmacological therapy remains the cornerstone of treatment for BD, current guidelines recommend combining medication with psychosocial interventions (Bilderbeck et al., 2016). It is known that medication as monotherapy is insufficient to enhance self-management skills. Medication can be useful in treating symptoms, but do not teach individuals how to manage the disorder. One of the predominant evidence-based psychosocial adjuncts for bipolar disorder is psychoeducation (PE). According to the National Institute for Health and Care Excellence (NICE) (2017), participation in a PE program is recommended as part of the clinical guidelines for long-term treatment of BD. PE as a treatment adjunct may be of particular

relevance to individuals with BD, given the high rate of associated treatment non-adherence and the negative impact the disorder has on QoL (Hidalgo-Mazzei et al., 2016).

The primary focus of PE is to provide patients with information about the nature of their disorder and its treatment. Formal PE programs are typically broken down into 60- to 90-minute weekly sessions, led by clinicians specializing in mental illness, including psychiatrists, psychologists, therapists, and nurses.

Although outcomes have been positive, barriers seem to interfere with success in providing PE in an accessible, convenient, and timely manner for a broad range of BD patients. Barriers that may prevent in-person PE implementation include cost, clinicians' time, the need for travel/transportation, and varieties of clinical settings and patients (Colom, 2011). In addition, sessions are typically scheduled on a fixed date or time, which has been reported as a major factor in poor attendance and attrition (Simon et al., 2011). In the case of rural or other areas with large distance between patients and clinical setting, implementation of weekly PE programs can be significantly limited (Hidalgo et al., 2016). Although there is increasing demand from patients and their relatives to receive PE, it is assumed that the vast majority of BD patients worldwide do not have access to these programs (Hidalgo-Mazzei et al., 2017).

Internet-based platforms have the potential to increase the reach of PE and self-management support (Simon et al., 2011). When utilized as a treatment adjunct for other mental disorders (major depressive disorder and anxiety disorders), web-based mental-health programs have demonstrated benefits in symptom reduction, as well as decreased relapse and hospital admissions (Murray et al., 2015). An online platform offers the possibility to access mental health education and treatment programs, according to individuals' own schedules, even in

remote areas (Proudfoot et al., 2012). This approach has the potential to improve equality of access in cost-effective ways (Todd et al., 2014).

Problem Statement

BD is a chronic mental disorder that can negatively affect an individual's QoL. PE programs are an evidence-based psychosocial adjunct, recommended by NICE for the treatment of BD. However, the majority of individuals with BD are not given access to formal PE programs.

Clinical Question

The systematic assessment of the impact of PE on individuals' QoL, psychosocial functioning, personal insight, and self-management skills has been limited when compared with outcomes related to treatment adherence and hospital readmission (Smith et al., 2011).

Can increasing outpatient access to PE, through the use of an online program, improve self-management of symptoms, illness understanding and perception, and QoL?

Review of Literature

A literature search was conducted using the databases CINAHL, MEDLINE, PsycINFO, Psychology & Behavioral Sciences Collection, and the DSM-5 Library using the search terms "Bipolar Disorder", AND "Psychoeducation", AND "online", "web-based", or "Internet" from 2005 to 2019. Other search terms were subsequently combined with "Bipolar Disorder", including "telehealth", "tele-psychiatry", and "quality of life", to ensure relevant studies were not overlooked. Search headings were generalized to "Bipolar Disorder" and "Psychoeducation" when the quantity of results was found to be scarce. This broadening of the search led to 173 research studies.

Duplicate studies were excluded. Articles were also excluded if they did not involve some form of PE, or if there was not an online intervention component as part of the study. Studies that utilized mobile phone interventions were only included if they specifically used some form of PE. After these exclusions, six articles met inclusion criteria. A review of the reference lists of these articles was performed to retrieve studies not found in the initial search. This led to two additional articles being included. Additionally, the aforementioned keywords were searched within four journals relevant to the topic: *Journal of Affective Disorders*, *Bipolar Disorders*, *BMC Psychiatry* and *Psychiatric Services*. One additional article was retrieved through this method. Three recent (2015-2016) applicable articles on depression and online PE were added after a search similar to the above (substituting “depression” for “bipolar disorder”). These articles spoke specifically to online PE. In addition, two studies found on individual PE for BD were included, given that, although in-person, the intervention is not being delivered in the typical group format.

A total of 10 articles were included in this literature review.

Interventions for Bipolar Disorder

Smith et al. (2011) examined the effect an Internet-based PE program entitled Beating Bipolar (Healthcare Learning, London, U.K.) could have on these outcomes. Fifty participants, aged 18 to 65 and currently in remission from BD, were randomized to either the intervention or treatment as usual (TAU) groups. The intervention group completed the eight modules in addition to TAU. The content was delivered in the form of videos of experts on the topic, interactive exercises, diagrams and illustrations, and videos of others discussing their experience of BD. Content included the etiology of BD, lifestyle considerations, relapse prevention and early intervention, treatment, families and partners, and occupation. Access to an online forum,

and the option to create a personal portfolio of progress through the program are also included. After an introductory in-person session, participants were encouraged to complete one module per week on their own time. A modestly significant difference ($p = .05$; 95% CI (0.24 to 22.6)) between the intervention and TAU groups was found in the psychological subsection of the brief WHOQOL-BREF scale, when compared at baseline and six months. This subsection assesses body image/appearance, negative feelings, positive feelings, self-esteem, memory, concentration, and religious/spiritual/personal beliefs.

Javadpour, Hedayati, Dehbozorgi, & Azizi (2013) also utilized the WHOQOL-BREF scale to investigate an individualized, in-person PE program. A total of 108 participants were randomized into two equal groups: pharmacotherapy plus PE or pharmacotherapy alone. Participants were aged 18 to 60 years and in a euthymic state at the time of the study. Participants had experienced at least two episodes of relapse in the past five years. Individuals in the intervention group received eight 50-minute sessions of PE followed by monthly telephone follow-up and psychological support in the subsequent 18 months. Both groups were evaluated once every six months using the WHOQOL-BREF. The intervention group was found to have significantly higher scores ($p = 0.001$) in each QoL domain (physical health, psychological health, social health, and environment).

Living with Bipolar (LWB) (Spectrum Centre for Mental Health Research, Lancaster, United Kingdom) is an online, interactive self-management intervention, consisting of ten interactive web modules, worksheets, case studies, and a mood monitoring tool (Todd et al., 2014). It is unique in that the program was consciously informed by the Mental Health Recovery Model and had specific goals of helping individuals increase their self-esteem and self-efficacy in managing BD, and increasing knowledge of specific self-management techniques to pursue

recovery goals (Todd et al., 2014). Participants were recruited from mental health agencies in the U.K. Short-term outcomes and follow-up assessments were taken at three and six months, post-randomization. Compared with the waitlist control group, those receiving LWB showed significant improvement in psychological ($t = .01$) and physical ($t = .01$) domains of the WHOQOL-BREF. Additionally, improvements in the wellbeing subsection of the Internal States Scale ($t < .01$) and recovery (measured by the Bipolar Recovery Questionnaire) ($t < .01$) were found at the end of the intervention.

Lauder et al. (2015) compared a head-to-head trial of MoodSwings (MS) with MS-Plus. MS-Plus contained the core PE content of MS with additional CBT-based interactive elements, including mood, medication, life-event monitoring, and personal coping strategies. Participants ($n=156$) were recruited through clinician referral and advertising via professional conferences and forums. The PE content was delivered to both groups in five online core PE modules. Utilizing an attention control that did not receive PE, may have been beneficial to assess the effectiveness of the PE received. There was a significant within-group improvement in QoL for the MS-Plus group at three ($p = .04$) and six ($p = .048$) months, and at 12 months ($p = .006$) for the MS group. There was also a trend toward significance at three months ($p = .06$) for the MS group.

Murray et al. (2015) were the first group to suggest that online treatments for BD should be tailored to illness stage. The investigators used a low-intensity mindfulness-based online intervention called ORBIT to assess its potential effectiveness with late-stage BD. Participants were considered late-stage if they had experienced six or more BD episodes (depressive, manic, hypomanic, or mixed). The primary outcome of interest was subjective QoL, as measured by the Quality of Life in Bipolar Disorder scale. Although the pilot sample ($n = 16$) was small and

participants only completed four modules over three weeks, the investigators reported that QoL ratings improved at the immediate post-test evaluation compared with pre-test ($p = .011$, Cohen's $d = .72$, partial n -squared $= .36$).

Jones et al. (2014) completed a pilot study on a 10-week web-based intervention for individuals with bipolar disorder who had young children (four to ten years of age). The investigators examined participants' perceptions of their own functioning as parents, with the Parenting Scale (PS). Although this study had a small sample (waitlist control group, $n = 20$; intervention group, $n = 19$) and high attrition rate ($n = 15$), a significant change in PS score occurred in the treatment group (slope $= -.91$, $p < .001$), but not in the waitlist control group (slope $= .03$, $p = .85$).

Building off the often-complex designs of current mobile health (mHealth) research, Hidalgo-Mezzei et al. (2017) evaluated the use of a mobile application (app) (SIMPLe 1.0) for BD in a sample of 49 individuals with remitted BD in Barcelona, Spain. This intervention was characterized by daily interactivity with the app and short PE messages. It was thought to have the potential to uniquely highlight prodromal symptom-catching. Daily interpersonal functioning was measured by the BRIAN 21-item evaluation, which considers sleep, activities, eating patterns, social activities, and circadian rhythms. Higher scores reflect a higher disturbance in the corresponding area. At conclusion, the mean total scores were reduced for the whole group, and among each category except 'activities' (sleep $p = .023$; activities $p = .071$; social rhythms $p = .001$; eating patterns $p = .001$; predominant rhythm $p = .001$; total $p = .001$). As shown in Table 1 (Melnik & Fineout-Overholt, 2015) (see Appendix A), this was the only study in the summary of evidence that did not use randomization.

Interventions for Depression

Like BD, depression is a mood disorder and is also known to have an enormous effect on QoL (Pinto et al., 2016). For most patients, much of the morbidity associated with BD is thought to be caused by a combination of recurrent depressive episodes and chronic, low-grade depressive symptoms, present for at least half of their lifetimes (Simpson et al., 2009). Given these similarities, investigation of an online intervention's success with depression may benefit researchers interested in implementing a similar intervention for BD.

Klein et al. (2016) used a PE program entitled Deprexis for patients with mild to moderate depression. Deprexis is a 12-week online program, consisting of ten modules covering content such as cognitive restructuring, behavioral activation, acceptance, mindfulness, and problem solving (Klein et al., 2016). It contains audio recordings, worksheets, and automatic daily messages, as well as an interactive component, engaging the user in exercises and eliciting feedback. Although its intervention was not specifically designed for BD, this study was included due to the participants ($n = 1013$) reporting mild to moderate symptoms of depression that caused them substantial and long-lasting impairment (Klein et al., 2016). Participants were recruited in Germany from inpatient and outpatient medical and psychological clinics, online forums for depression, health insurance companies, and newspapers. The main inclusion criterion was the presence of self-reported mild to moderate depressive symptoms (scores between 5 and 14 on the Patient Health Questionnaire-9). The intervention group received access to the online intervention in addition to TAU, while the control group received TAU. Using the Short Form Health Survey (SF-12), Klein et al. (2016) found a statistically significant ($p < .001$) difference between groups in measures of mental health-related QoL, at six-month follow-up.

Nobis et al. (2015) found that a six-session web-based PE intervention (GET.ON Mood Enhancer Diabetes) was effective in decreasing disease-specific emotional distress in participants ($n = 129$) with the common co-occurring illnesses, diabetes and depression. The Problem Areas in Diabetes (PAID) scale, which measures emotional functioning, showed a medium standard effect size (Cohen's $d = 0.58$, $p < 0.001$) for the intervention group.

Buntrock et al. (2016) evaluated 202 participants who were in partial remission from Major Depressive Disorder. Participants completed either a six-session interactive online tool based on PE, behavior therapy, and problem-solving or were randomized to an enhanced usual care, which was psychoeducational information based on the German S3-Guideline, but without the additional interactive supports received by the intervention group. Participants in the intervention group had significant differences (between-group effect size Cohen's $d = 0.37$, 95% C.I. .17 to .56) from baseline to 12-month follow-up in the mental health summary score of the 12-Item Short Form Health Survey (SF-12), when compared to the control group.

Online PE interventions have shown positive results on measures of QoL. Although there is considerable evidence for online PE interventions, widespread implementation into practice has not occurred. Given PE's benefits as a psychosocial adjunct, and the disparity in those who receive it, online versions should be considered as a means of increasing access to PE. In turn, this educational therapy has the potential to improve QoL and self-management.

Theoretical Framework

Concepts from Aaron Antonovsky's Sense of Coherence (SOC) Model have been applied to this project. SOC is defined as a life orientation that expresses one's ability to identify one's own internal and external resources, and use them in a way that promotes health and wellbeing

(Eriksson, 2016). Additionally, the individual feels that the demands faced in life are seen as challenges worthy of investment and engagement.

SOC has been found to have a strong association with QoL. A review by Eriksson and Lindstrom (2007), which included individuals with severe mental illness, found that the stronger the SOC, the better QoL was perceived. This association was especially strong in the specific QoL areas of mental health, day-to-day functioning, and wellbeing.

PE has been shown to enhance individuals' SOC, thereby effectively mediating and reducing stress (McGee, Holtge, Maerker, & Thoma, 2018). Antonovsky described this aspect of SOC as comprehensibility, where an individual operates in a spectrum between structure and chaos. There is high applicability of this model to the experience of individuals with BD, who are faced with navigating complex internal and external life circumstances.

Purpose Statement

The purpose of this project was to implement an online PE program for adults with BD. Clients at three sites where the intervention was implemented were characteristic of most individuals with BD in the U.S.: they received limited PE from various mental health providers but did not have access to formal PE programs. Additionally, access to PE was intended to improve subjective QoL, as well as cognitive and emotional illness perception. Clinicians at each of the clinical sites recognized the need for an adjunct of this type to enhance the self-management of their clients with BD. The feasibility of implementing an online PE program was evaluated.

Methods

Settings

This quality improvement project was introduced at a total of three outpatient psychiatric locations in Louisville, Kentucky.

Early in the development phase, the project was proposed to a local hospital's behavioral health IOP. Clinicians from this program expressed interest in the project and suggested reservation of a hospital computer laboratory as a space for clients to utilize the online program. However, the director of clinical informatics informed the DNP student that this was not possible due to hospital policies restricting patients from obtaining a computer network password. Project planning at this site did not continue beyond the initial meeting and contact with the director of clinical informatics.

The project was next introduced at the downtown site of a local not-for-profit community mental health organization. Clinical managers at the agency were presented with the project design and found it would be relevant and beneficial to their clients. One of the agency's larger clinical sites was specifically chosen because it is equipped with a small computer lab, allowing for participants to complete the intervention onsite. The DNP project proposal was approved by the agency's Institutional Review Board (IRB) (see Appendix B). This site's clinical manager also submitted a letter of support. The site's clinical manager did express some initial concern regarding clients' willingness to participate in a program that does not offer some incentive. The DNP student submitted an Engaged Scholarship Funding application to the University of Louisville's Office of Health Disparities and Community Engagements and was approved for funding to be used to provide a small incentive of coffee and snacks at each intervention session.

The planning phase at this site lasted approximately three months but was changed due to difficulties with recruitment of participants and significant changes to the agency's programming, which limited stakeholder engagement. Thus, the incentive funding was not used due to the site of the DNP project being changed.

The project was next introduced at a private psychiatric practice. This agency's clinical manager, psychiatric mental health nurse practitioner (PMHNP), psychiatrist, and a therapist were presented with the project goals and PE intervention. The office manager and clinicians expressed support, pointing to the potential benefits the intervention could provide to their clients. This agency described enthusiasm for innovation in their practice and were more motivated to invest time into the project. A letter of support was provided by the practice's clinical manager (see Appendix C). Clients also expressed interest when presented with the project's intervention and goals, via in-person introductions or flyers delivered through SPS's secure text-messaging service. It was thought that the small setting of the private practice would readily allow for staff and clinician familiarity with the project and its goals. Psychiatric providers assisted in informing and advocating for appropriate clients to consider participation in the project. The DNP student closely collaborated with one of the agency's therapists, who was particularly skilled at utilizing the office's text-messaging system, creating digital flyers, and technological troubleshooting. About four months were spent planning and implementing the project at this practice, but only one of seven participants fully completed the PE program.

Finally, the project was introduced at a different clinical site within the same not-for-profit community health agency, in an attempt to garner further participation. The DNP student became familiar with this site via clinical practicum group therapy hours and found clients who

met project inclusion criteria. While three clients agreed to participate, only one participant completed the intervention.

Target Population

This project's target population was individuals with BD receiving outpatient mental health services. Participants were recruited with the help of a psychiatrist, a psychiatric mental health nurse practitioner (PMHNP), the office coordinator, and one of the office's therapists, according to the inclusion and exclusion criteria. Clients who met inclusion criteria were either sent flyers through the office's secure text messaging and email system or were informed and invited to participate by the DNP student prior to, or following, an office visit. Individuals met inclusion criteria if they were aged 18 to 70, had received a diagnosis of bipolar disorder I, II, "mixed", or any other BD diagnostic specifier from their psychiatric provider, and were currently in partial or full remission. The participants were required to have the ability to speak and read English, as well as have access to a computer and Internet at their homes. A total of seven clients from this practice agreed to participate.

Individuals were excluded if they were currently experiencing a depressed, hypomanic, or manic episode, were outside the stated age range, could not speak or read English, or did not have a bipolar diagnosis. Presence of a current mood episode was determined by the client's primary psychiatric provider.

Clients from the private practice were introduced to the intervention in person and encouraged to complete the eight modules of the program independently, and within a two-week timeframe.

Due to the small sample size, the DNP student sought participants from an outpatient community mental health clinic, within the same not-for-profit agency as the original site

location. The DNP student completed clinical practicum group therapy hours at this site and the project had been previously approved by the agency's IRB. Clients in weekly group therapy were introduced to the project and its goals. Three additional clients who met criteria were pre-screened and agreed to participate.

Intervention and Procedures

Participants agreed to complete an online PE program entitled Beating Bipolar (Healthcare Learning, London, U.K.). This program was selected because it had a positive impact on addressing QoL symptoms in BD and is the only one of its kind for BD that is available online, at no cost to the user (Smith et al., 2011). The DNP student gained permission from the creators of the program (The National Centre's for Mental Health Bipolar Education Programme) at Cardiff University in Wales, U.K. The program consists of eight modules that include videos of professionals providing educational content to help individuals with BD better understand and manage the condition and its symptoms. Interactive exercises, videos of others discussing their experience with the disorder, access to an online forum, and the option to create a personal portfolio of progress through the program are included. The aim was to increase subjective QoL ratings in these individuals, as measured by the World Health Organization Quality of Life- Brief (WHOQOL-BREF) scale (see Appendix D). Additionally, improvement in emotional and cognitive perceptions of the disorder were expected, as measured by the Brief Illness Perception Questionnaire (Brief IPQ) (see Appendix E).

Ethical Considerations and IRB

The project was reviewed by the Chair/Vice Chair of the University of Louisville's Institutional Review Board (IRB). The project did not meet the "Common Rule" definition of human subjects' research and did not require further review. The IRB advised that institutional

guidelines on patient privacy must be followed and HIPAA Privacy rules still apply if using protected health information.

Participants were assigned a random four-digit number to protect their privacy, protected health information, and demographic data. This data was entered in an Excel spreadsheet and saved on a secure, password-protected laptop.

The DNP student had a plan in place to contact the appropriate psychiatric provider, or relevant emergency personnel, if at any time during the intervention process, participants displayed or voiced symptoms of psychological crisis, including suicidal or homicidal ideation.

Design

A pre-test, post-test design was used for this project.

Measures

The outcome variables included QoL and perceptions of illness. Improving illness self-management of persons with BD may lead to improved QoL and perceptions about the condition. Participants completed the WHOQOL-BREF scale and Brief IPQ scales prior to completing the intervention. Demographic data was collected at this time. This included gender, age, highest education level completed, marital status, and psychiatric diagnosis. Participants were asked to complete the WHOQOL-BREF scale and Brief IPQ prior to beginning the intervention, and again, once all modules of the intervention have been completed.

The WHOQOL-BREF (Appendix D) is a shortened version of the WHOQOL-100, which has been found to be useful when time, or attention span, are restricted. This is the instrument that was used in the original Beating Bipolar exploratory trial. The abbreviated scale contains 26 Likert-scale questions in the context of four domains of QoL: psychological, physical, social, and environment. The scale has been found to be cross-culturally sensitive and is concerned

with the meaning of different aspects of life to the participants, as well as how satisfactory or problematic their experience is with them (Skevington, Lotfy, & O'Connell, 2004). The scale has been found to have acceptable reliability. Cronbach's alpha was 0.82 for the physical health domain, 0.81 for psychological, 0.80 for environment, and 0.68 for social relationships (Skevington, Lotfy, & O'Connell, 2004). Discriminant validity was significant ($p < 0.01$) for each domain when sick and well respondents were compared (Skevington, Lotfy, & O'Connell, 2004).

The Brief IPQ (Appendix E) is a shortened version of the Illness Perception Questionnaire- Revised (IPQ-R), that has been used to rapidly assess cognitive and emotional perceptions related to individuals' chronic illness. The questionnaire consists of nine Likert-scale items and one "causal", open-ended item. Five of the items assess cognitive illness representations in the form of consequences, timeline, personal control, treatment control and personal identity. Two of the items assesses emotional representations, namely emotions and concern related to illness. The remaining item assesses illness comprehensibility. The Brief IPQ has been used in a variety of chronic illnesses that are known to impact QoL, including two studies that have used the questionnaire as an outcome measure for participants with BD (Proudfoot et al., 2012, Smith et al., 2011). Broadbent, Petrie, Main, & Weinman (2006) found each item of the Brief IPQ to have significant ($p < .001$) test-retest reliability after three weeks. Concurrent validity was also demonstrated; the Brief IPQ and the IPQ-R were found to be appropriately correlated. Broadbent et al. (2006) also found the Brief IPQ to have good predictive validity in a sample of clients recovering from myocardial infarction (MI). A slower return to work was found to be significantly associated with higher concern ($r=.43$; $p=.03$) and with higher treatment control beliefs ($r=.44$; $p=.03$).

Data Collection

After initial screening for appropriateness to complete the project intervention, ten participants were administered a brief demographic questionnaire, the WHOQOL-BREF, and the Brief IPQ. After completing the project, participants were asked to complete the post-test WHOQOL-BREF, the Brief IPQ, and a satisfaction survey (see Appendix F). Participants that started the project, but withdrew ($n = 2$) before completion and responded to follow-up, were also asked to complete the satisfaction survey.

Data Analysis

Paired t tests were not used as intended due to minimal participant completion of the project.

Results

Quantitative

Only two ($N = 2$) participants completed the intervention, while two dropped out, and the remaining six were unable to be reached after signing up and being introduced to the project.

The psychological domain of the WHOQOL-BREF scores was most relevant to this intervention, given the relatively short post-intervention follow-up period. This domain addresses concepts like self-esteem, negative and positive feelings, learning, and personal beliefs, and ranges in score from 0 to 100. A higher score indicates a more positive subjective experience in these areas. In the pretest, one participant's score was 44 in this domain. At posttest, this participant's score was 56, representing a 12-point increase.

This same participant's pretest-posttest scores also increased from 5 to 6 on the Illness Control question, and from 8 to 10 on the Illness Understanding question of the Brief IPQ. The Illness Control question on the Brief IPQ assesses the extent to which a person feels they are able

to control or manage an illness. The Illness Understanding question assesses the extent to which the person feels they comprehend or understand the illness. Both of these areas are rated on a 0 to 10 Likert scale, where 0 represents the person perceiving “absolutely no control” (Illness Control) or “don’t understand at all” (Illness Understanding). A rating of 10 represents “an extreme amount of control” (Illness Control) or “understand very clearly” (Illness Understanding).

The second participant’s scores did not change in these areas of the Brief IPQ. This participant’s pretest-posttest scores actually decreased from 38 to 31 in the psychological domain score of the WHOQOL-BREF scale.

Qualitative

Both participants rated the program as easy to use, relevant to their experience with BD, and reported learning a great deal about BD. One of the participants who completed the intervention provided feedback that “learning more [coping] strategies” would have been beneficial to the program.

One of the participants who withdrew from the project provided feedback that she “didn’t get much from” the material on the two modules she completed. She added that she had “35 years of struggle and survival under my belt”, and “I am very well-read on my condition and had a good grasp of much of the information.” This participant also offered her insights that the intervention may be more applicable and beneficial to a newly-diagnosed person. Another participant that dropped out cited that he did not have sufficient time to complete the intervention due to his current life circumstances and work schedule.

Process

A general lack of participation was found whether participants were encouraged to engage with the intervention in-person, at a clinical site, or at home in their free time. Additionally, unforeseen obstacles occurred during the planning and implementation phases, which delayed and negatively impacted the project.

The initial project site, a local community mental health clinic, was changed due to difficulties with recruitment of participants and significant changes to the agency's programming, which limited stakeholder engagement. The project site was then changed to a local private practice that found the project to be ideal for many of their clients with BD. The DNP student, agency stakeholders, and clients at this site decided that completing the program on the Beating Bipolar website, independently, would be most feasible. This is actually the way the creators of the program intended the intervention to be used. However, shortly after an introduction and pre-screening, it was determined that there was a recent technical issue, preventing participants from registering for the program. The DNP student informed the Beating Bipolar research team of this issue. After two weeks passed without resolution, the DNP student opted to provide each of seven participants with a USB containing the program instead of using the program's website. These seven clients had met screening criteria and expressed initial enthusiasm in participating in a program that addressed BD in-depth. However, most of the participants ($n = 4$) fell out of contact after introduction and pre-screening. The DNP student attempted frequent follow-up engagement with these clients but was generally unsuccessful in garnering participation. Three of the seven participants remained in contact with the DNP student. One participant did complete two modules of the program but then did not continue. Another participant maintained contact but eventually opted to end participation before engaging

with the intervention. One participant did fully complete the intervention. At that time, strategizing was used to determine next steps required to elicit further participation.

Due to this limited participation at the private practice, the original not-for-profit community mental health agency was revisited, at a different clinic site. Consideration was given to the possibility that the not-for-profit agency had a higher rate of severe mental illness and PE might be more relevant to these clients. Yet only one of three participants at this particular site fully completed the project while the other two were unable to be reached at follow-up or were absent at scheduled appointment to complete the intervention.

Discussion

The major unforeseen limitation for this project was low participation, despite introduction at three outpatient locations. Recruitment and retention of participants was an unanticipated challenge despite efforts to address barriers as they arose. This is highlighted by an 80% attrition rate. There is question as to whether this could be the result of a highly-informed sample of clients and/or resulting from living with BD for many years. Demographic data was obtained on all participants ($n = 10$), prior to beginning the intervention. Eight of these participants withdrew before fully completing the modules. The mean age of all participants ($n = 10$) was 47 years, and 80% had completed college. All of the participants had been diagnosed with BD for a minimum of four years, while many had been diagnosed for a decade or more. Although the program was created for “long-term management” of BD, the impression that the program may be more relevant to a newly-diagnosed person should be a consideration in the future clinical use of a program with similar content.

Of the two clients who completed the modules, however, one reported a 12 point improvement on the psychological domain of the WHOQOL-BREF scale suggesting an increase

in self-esteem and positive, personal beliefs about self and living with BD. This finding is consistent with the literature (Smith et al., 2011; Todd et al., 2014), while the other reported a 7 point decrease in the WHOQOL-BREF scale. A possible explanation for this may be that not enough time elapsed between Time 1 (pretest) and completing the six modules and Time 2 completing the posttest to determine a measurable difference.

Because of difficulties in garnering participation, technological issues, revisions of the planning and IRB process, and associated delays in implementing the project, longer-term follow-up assessment of outcome measures was not possible and should be seen as a limitation. Additionally, both of the outcome measures used were self-reported and subjective. Measures that were based on clinician observation were not used. Barriers related to technology (availability of computer labs, USBs incompatible with home computers, website malfunctions) were also an issue with this project and require careful consideration in future investigations.

Although a general lack of participation in this project was disappointing and unexpected, there were also positive aspects. Awareness of a variety of online PE programs for mood and anxiety disorders was increased by clinicians and clients at the agencies that were involved. Participants who did complete the intervention found the intervention to be highly relevant and educational to their experience with BD. Insight was gained into factors such as considering the number of years diagnosed with BD and an intervention's corresponding relevance.

Conclusions

This project raised questions as to the feasibility of implementing an online PE program. Future investigations into improving access and benefits of PE might consider a more specific collection of demographic information, such as length of time since participants' initial diagnosis and amount of past education on the disorder individuals had received. Gaining information in

more specific demographic areas may provide insight into more appropriate settings for this type of intervention. Future studies could look into the question of whether a setting where a higher percentage of clients were newly diagnosed, such as an intensive outpatient program, may be a better target sample. Additionally, a longer time frame between intervention implementation and collection of outcome measures would likely be more insightful on PE's effects.

Discovering what would make a PE program more meaningful and elicit greater participation may be beneficial. Client-guided focus groups may be a way to facilitate this. Clinician strategies for engagement in feedback and reinforcement of material may also require investigation. Finally, efforts should continue to attempt to translate results from randomized controlled trials (RCTs) on PE to hold up to implementation in clinical settings.

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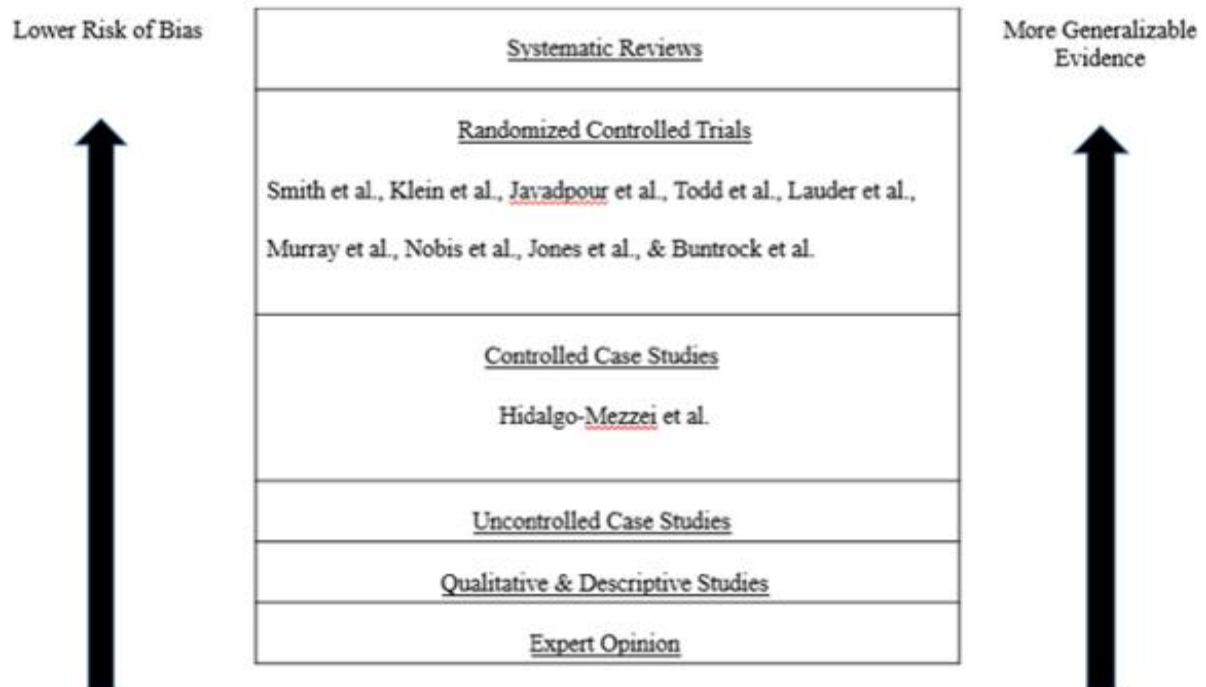
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Appendix A

Table 1

Hierarchy of Evidence for Included Studies

Appendix B



CENTERSTONE

February 11, 2019

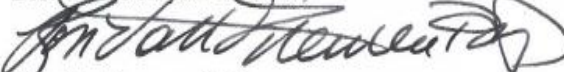
Scott Kristie
University of Louisville

Dear Scott,

I am pleased to inform you that your proposal entitled: *Online Psychoeducation to Improve Quality of Life for Individuals with Bipolar*, has been approved by the IRB of Centerstone of Kentucky.

At this point you are authorized to proceed with your plans. This authorization is in effect for one year and expires on date. If you require additional time, or need to make significant changes to your proposal let us know immediately. Please feel free to contact the IRB Committee Chair if you have any additional questions regarding your project.

Best wishes on your research,



Ron Van Treuren, Ph.D
Chair, IRB
Centerstone of Kentucky
ronald.vantreuren@centerstone.org

Appendix C

Sensible Psychiatric Services
4010 Dupont Circle Ste. 300
Louisville, KY 40207



03/07/2019

Human Subjects Protection Program
Med Center One, Suite 200
University of Louisville
501 E. Broadway
Louisville, KY 40202

Dear IRB Members:

I have read Scott Kristie's proposal for a Doctor of Nursing Practice (DNP) project to be carried out at Sensible Psychiatric Services. I understand that this student is conducting this project as part of his requirements for the DNP program at the University of Louisville and will have the opportunity to present the project findings in other venues.

I understand that the Institutional Review Board (IRB) for the Use of Human Subjects at the University of Louisville is concerned with protecting the confidentiality, privacy, and wellbeing of the project participants. Further, it is my understanding that he will additionally be advised in this project by his DNP project chair and co-chair, both of whom will have regular contact with him.

I do not have concerns about the project Scott has proposed based on conversations with the student and after reviewing his DNP project proposal. The agency supports Scott's plan and approves of the project, including recruitment of participants and data collection, through our agency.

Should you have additional questions or concerns, you may contact me. 502-894-6066

A handwritten signature in black ink, appearing to read 'Lisa Dischinger', is written over a horizontal line.

Lisa Dischinger

Practice Manager

Appendix D

WHO/MSA/MNH/PSF/97.4
English only
Distr.: Limited

WHOQOL-BREF



PROGRAMME ON MENTAL HEALTH
WORLD HEALTH ORGANIZATION
GENEVA

For office use only

	Equations for computing domain scores	Raw score	Transformed scores*	
Domain 1	$(6-Q3) + (6-Q4) + Q10 + Q15 + Q16 + Q17 + Q18$ $\square + \square + \square + \square + \square + \square + \square$	=	4-20	0-100
Domain 2	$Q5 + Q6 + Q7 + Q11 + Q19 + (6-Q26)$ $\square + \square + \square + \square + \square + \square$	=		
Domain 3	$Q20 + Q21 + Q22$ $\square + \square + \square$	=		
Domain 4	$Q8 + Q9 + Q12 + Q13 + Q14 + Q23 + Q24 + Q25$ $\square + \square + \square + \square + \square + \square + \square + \square$	=		

* Please see Table 4 on page 10 of the manual, for converting raw scores to transformed scores.

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ABOUT YOU

Before you begin we would like to ask you to answer a few general questions about yourself: by circling the correct answer or by filling in the space provided.

What is your **gender**?

Male Female

What is your **date of birth**?
 _____ / _____ / _____
 Day / Month / Year
What is the highest **education** you received?
 None at all
 Primary school
 Secondary school
 Tertiary
What is your **marital status**?

Single	Separated
Married	Divorced
Living as married	Widowed

Are you currently **ill**? Yes No

If something is wrong with your health what do you think it is? _____ illness/ problem

Instructions

This assessment asks how you feel about your quality of life, health, or other areas of your life. **Please answer all the questions.** If you are unsure about which response to give to a question, **please choose the one** that appears most appropriate. This can often be your first response.

Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life **in the last two weeks**. For example, thinking about the last two weeks, a question might ask:

	Not at all 1	Not much 2	Moderately 3	A great deal 4	Completely 5
Do you get the kind of support from others that you need?					

You should circle the number that best fits how much support you got from others over the last two weeks. So you would circle the number 4 if you got a great deal of support from others as follows.

	Not at all 1	Not much 2	Moderately 3	A great deal 4	Completely 5
Do you get the kind of support from others that you need?					

You would circle number 1 if you did not get any of the support that you needed from others in the last two weeks.

Please read each question, assess your feelings, and circle the number on the scale for each question that gives the best answer for you.

		Very poor	Poor	Neither poor nor good	Good	Very good
1(G1)	How would you rate your quality of life?	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
2 (G4)	How satisfied are you with your health?	1	2	3	4	5

The following questions ask about **how much** you have experienced certain things in the last two weeks.

		Not at all	A little	A moderate amount	Very much	An extreme amount
3 (F1.4)	To what extent do you feel that physical pain prevents you from doing what you need to do?	1	2	3	4	5
4(F11.3)	How much do you need any medical treatment to function in your daily life?	1	2	3	4	5
5(F4.1)	How much do you enjoy life?	1	2	3	4	5
6(F24.2)	To what extent do you feel your life to be meaningful?	1	2	3	4	5

		Not at all	A little	A moderate amount	Very much	Extremely
7(F5.3)	How well are you able to concentrate?	1	2	3	4	5
8 (F16.1)	How safe do you feel in your daily life?	1	2	3	4	5
9 (F22.1)	How healthy is your physical environment?	1	2	3	4	5

The following questions ask about **how completely** you experience or were able to do certain things in the last two weeks.

		Not at all	A little	Moderately	Mostly	Completely
10 (F2.1)	Do you have enough energy for everyday life?	1	2	3	4	5
11 (F7.1)	Are you able to accept your bodily appearance?	1	2	3	4	5
12 (F18.1)	Have you enough money to meet your needs?	1	2	3	4	5
13 (F20.1)	How available to you is the information that you need in your day-to-day life?	1	2	3	4	5
14 (F21.1)	To what extent do you have the opportunity for leisure activities?	1	2	3	4	5

		Very poor	Poor	Neither	Good	Very good
--	--	-----------	------	---------	------	-----------

MSA/MNH/PSF/97.6
Page 18

				poor nor good		
15 (F9.1)	How well are you able to get around?	1	2	3	4	5

The following questions ask you to say how **good or satisfied** you have felt about various aspects of your life over the last two weeks.

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
16 (F3.3)	How satisfied are you with your sleep?	1	2	3	4	5
17 (F10.3)	How satisfied are you with your ability to perform your daily living activities?	1	2	3	4	5
18(F12.4)	How satisfied are you with your capacity for work?	1	2	3	4	5
19 (F6.3)	How satisfied are you with yourself?	1	2	3	4	5
20(F13.3)	How satisfied are you with your personal relationships?	1	2	3	4	5
21(F15.3)	How satisfied are you with your sex life?	1	2	3	4	5
22(F14.4)	How satisfied are you with the support you get from your friends?	1	2	3	4	5
23(F17.3)	How satisfied are you with the conditions of your living place?	1	2	3	4	5
24(F19.3)	How satisfied are you with your access to health services?	1	2	3	4	5
25(F23.3)	How satisfied are you with your transport?	1	2	3	4	5

The following question refers to **how often** you have felt or experienced certain things in the last two weeks.

		Never	Seldom	Quite often	Very often	Always
26 (F8.1)	How often do you have negative feelings such as blue mood, despair, anxiety, depression?	1	2	3	4	5

Did someone help you to fill out this form?.....

How long did it take to fill this form out?.....

Do you have any comments about the assessment?

.....
.....

THANK YOU FOR YOUR HELP

Appendix E

Appendix A. The Brief Illness Perception Questionnaire

For the following questions, please circle the number that best corresponds to your views:

How much does your illness affect your life?	0	1	2	3	4	5	6	7	8	9	10
no affect at all											severely affects my life
How long do you think your illness will continue?	0	1	2	3	4	5	6	7	8	9	10
a very short time											forever
How much control do you feel you have over your illness?	0	1	2	3	4	5	6	7	8	9	10
absolutely no control											extreme amount of control
How much do you think your treatment can help your illness?	0	1	2	3	4	5	6	7	8	9	10
not at all											extremely helpful
How much do you experience symptoms from your illness?	0	1	2	3	4	5	6	7	8	9	10
no symptoms at all											many severe symptoms
How concerned are you about your illness?	0	1	2	3	4	5	6	7	8	9	10
not at all concerned											extremely concerned
How well do you feel you understand your illness?	0	1	2	3	4	5	6	7	8	9	10
don't understand at all											understand very clearly
How much does your illness affect you emotionally? (e.g. does it make you angry, scared, upset or depressed?)	0	1	2	3	4	5	6	7	8	9	10
not at all affected emotionally											extremely affected emotionally

Please list in rank-order the three most important factors that you believe caused your illness.

The most important causes for me:-

1. _____
2. _____
3. _____

Appendix F

1. How relevant to your life did you find the content on Beating Bipolar?

Not relevant at all Highly Relevant
0 1 2 3 4 5

2. How easy or difficult was this program to use?

Very Easy Very Difficult
0 1 2 3 4 5

3. How much did you learn from the program?

Nothing at all I learned a great deal
0 1 2 3 4 5

4. What was helpful about the program?

5. What do you think could be improved about the program?